

Amendments to the Claims

Claims 1-4 (Cancelled)

Claim 5 (Currently Amended) A ~~The~~ polygon rendering device according to claim 1 comprising:

a polygon division section for dividing, based on polygon data which specifies a polygon to be rendered, the polygon into a plurality of partial polygons such that at least one of the plurality of partial polygons has formed therein, from vertices thereof, a plurality of triangles which respectively share a vertex of the polygon; and

a partial polygon rendering section for performing a rendering process and, without requiring further division of any of the plurality of partial polygons, generating partial image data which represents an image of the at least one partial polygon from partial polygon data, wherein

a plurality of partial image data represents an image of the polygon when combined,

the polygon data includes n sets of vertex coordinates P_1 to P_n of the polygon in such an order that the polygon can be rendered in one stroke in a forward direction, and

said polygon division section

selects one of the vertex coordinates P_1 to P_n of the polygon data as a reference vertex P_b ($b=1, 2, \dots, n$), and in the forward direction, selects a vertex P_c positioned adjacent to the reference vertex P_b and a vertex $P_{(c+1)}$ positioned adjacent to the vertex P_c , and a triangle $\triangle P_b P_c P_{(c+1)}$ formed by the reference vertex P_b , and the vertexes P_c and $P_{(c+1)}$ carries, in and on, no other vertex P_i ($i = 1, 2, \dots, n$, and $i \neq b, i \neq c, i \neq c+1$) belonging to the polygon and not yet selected, and an angle $\angle P_b P_c P_{(c+1)}$ formed by the reference vertex P_b , and the vertexes P_c and $P_{(c+1)}$ is smaller than 180 degrees,

selects, in addition to the reference vertex P_b and the vertex $P_{(c+1)}$, a vertex $P_{(c+2)}$ which is positioned adjacent to the vertex $P_{(c+1)}$ in the forward direction, and a triangle $\triangle P_b P_{(c+1)} P_{(c+2)}$ formed by the reference vertex P_b , and the vertexes $P_{(c+1)}$ and $P_{(c+2)}$ carries no other vertex P_j ($j = 1, 2, \dots, n$, and $j \neq b, j \neq c, j \neq c+1, j \neq c+2$) which belongs to the polygon and not yet selected, and an angle $\angle P_b P_{(c+1)} P_{(c+2)}$ formed by the reference vertex

Pb, and the vertexes P(c+1) and P(c+2) is smaller than 180 degrees, and

generates the partial polygon data specifying at least the partial polygon formed by the reference vertex Pb, and the vertexes Pc, P(c+1), and P(c+2).

Claim 6 (Previously Presented) The polygon rendering device according to claim 5, wherein said polygon division section

sets, when the vertex P(c+2) selected thereby satisfies a condition that the triangle $\triangle Pb$ P(c+1) P(c+2) carries, in and on, no other vertex Pj, and the angle $\angle Pb$ P(c+1) P(c+2) is smaller than 180 degrees, the vertex P(c+2) as the vertex P(c+1),

keeps selecting, until the condition is no longer satisfied, together with the reference vertex Pb and the newly-set vertex P(c+1), a new vertex P(c+2) which is positioned adjacent to the newly set vertex P(c+1), and

generates the partial polygon data which specifies the partial polygon formed by the reference vertex Pb, the vertexes Pc and P(C+1), and at least one of the vertexes P(c+2).

Claim 7 (Cancelled)

Claim 8 (Currently Amended) A ~~The~~ polygon rendering method according to claim 7 comprising:

a polygon division operation of dividing, based on polygon data which specifies a polygon to be rendered, the polygon into a plurality of partial polygons such that at least one of the plurality of partial polygons has formed therein, from vertices thereof, a plurality of triangles which respectively share a vertex of the polygon; and

a partial polygon rendering operation of performing a rendering process and, without requiring further division of any of the plurality of partial polygons, generating partial image data which represents an image of the at least one partial polygon from partial polygon data, wherein

a plurality of partial image data represents an image of the polygon when combined,

the polygon data includes n sets of vertex coordinates P1 to Pn of the polygon in such an order that the polygon can be rendered in one stroke in a forward direction,

said polygon division operation includes

~~includes~~ a first selection operation of selecting one of the vertex coordinates P_1 to P_n of the polygon data as a reference vertex P_b ($b=1, 2, \dots, n$), and in the forward direction, selecting a vertex P_c positioned adjacent to the reference vertex P_b and a vertex $P_{(c+1)}$ positioned adjacent to the vertex P_c , and a triangle $\triangle P_b P_c P_{(c+1)}$ formed by the reference vertex P_b , and the vertexes P_c and $P_{(c+1)}$ carries, in and on, no other vertex P_i ($i = 1, 2, \dots, n$, and $i \neq b, i \neq c, i \neq c+1$) belonging to the polygon and not yet selected, and an angle $\angle P_b P_c P_{(c+1)}$ formed by the reference vertex P_b , and the vertexes P_c and $P_{(c+1)}$ is smaller than 180 degrees, and

~~includes~~ a second selection operation of selecting, in addition to the reference vertex P_b and the vertex $P_{(c+1)}$, a vertex $P_{(c+2)}$ which is positioned adjacent to the vertex $P_{(c+1)}$ in the forward direction, and a triangle $\triangle P_b P_{(c+1)} P_{(c+2)}$ formed by the reference vertex P_b , and the vertexes $P_{(c+1)}$ and $P_{(c+2)}$ carries no other vertex P_j ($j = 1, 2, \dots, n$, and $j \neq b, j \neq c, j \neq c+1, j \neq c+2$) which belongs to the polygon and not yet selected, and an angle $\angle P_b P_{(c+1)} P_{(c+2)}$ formed by the reference vertex P_b , and the vertexes $P_{(c+1)}$ and $P_{(c+2)}$ is smaller than 180 degrees, and

said polygon division operation generates the partial polygon data specifying at least the partial polygon formed by the reference vertex P_b , and the vertexes P_c , and $P_{(c+1)}$ selected in said first selection operation, and the vertex $P_{(c+2)}$ selected in said second selection operation.

Claim 9 (Previously Presented) The polygon rendering method according to claim 8, wherein

said polygon division operation further includes a setting operation of setting the vertex $P_{(c+2)}$ to the vertex $P_{(c+1)}$ when the vertex $P_{(c+2)}$ selected in said second selection operation satisfies a condition that the triangle $\triangle P_b P_{(c+1)} P_{(c+2)}$ carries, in and on, no other vertex P_j , and the angle $\angle P_b P_{(c+1)} P_{(c+2)}$ is smaller than 180 degrees,

said second selection operation keeps selecting, until the condition is no longer satisfied, together with the reference vertex P_b selected in said first selection operation, and the vertex $P_{(c+1)}$ newly set in said setting operation, a new vertex $P_{(c+2)}$ which is positioned adjacent to the newly-set vertex $P_{(c+1)}$, and

said polygon division operation generates the partial polygon data which specifies the partial polygon formed by the reference vertex P_b , and the vertexes P_c and $P(c+1)$ selected in said first selection operation, and the vertex $P(c+2)$ selected in said second selection operation.

Claim 10 (Cancelled)

Claim 11 (Currently Amended) ~~A~~ ~~The polygon rendering program according to claim 10~~ operable to instruct a processor to render a polygon, the polygon rendering program comprising:

a polygon division operation of dividing, based on polygon data which specifies a polygon to be rendered, the polygon into a plurality of partial polygons such that at least one of the plurality of partial polygons has formed therein, from vertices thereof, a plurality of triangles which respectively share a vertex of the polygon; and

a partial polygon rendering operation of performing a rendering process and, without requiring further division of any of the plurality of partial polygons, generating partial image data which represents an image of the at least one partial polygon from partial polygon data, wherein

a plurality of partial image data represents an image of the polygon when combined,

the polygon data includes n sets of vertex coordinates P_1 to P_n of the polygon in such an order that the polygon can be rendered in one stroke in a forward direction,

said polygon division operation includes

~~includes~~ a first selection operation of selecting one of the vertex coordinates P_1 to P_n of the polygon data as a reference vertex P_b ($b=1, 2, \dots, n$), and in the forward direction, selecting a vertex P_c positioned adjacent to the reference vertex P_b and a vertex $P(c+1)$ positioned adjacent to the vertex P_c , and a triangle $\triangle P_b P_c P(c+1)$ formed by the reference vertex P_b , and the vertexes P_c and $P(c+1)$ carries, in and on, no other vertex P_i ($i = 1, 2, \dots, n$, and $i \neq b, i \neq c, i \neq c+1$) belonging to the polygon and not yet selected, and an angle $\angle P_b P_c P(c+1)$ formed by the reference vertex P_b , and the vertexes P_c and $P(c+1)$ is smaller than 180 degrees, and

~~includes~~ a second selection operation of selecting, in addition to the reference vertex P_b and the vertex $P(c+1)$, a vertex $P(c+2)$ which is positioned adjacent to the vertex

$P(c+1)$ in the forward direction, and a triangle $\triangle P_b P(c+1) P(c+2)$ formed by the reference vertex P_b , and the vertexes $P(c+1)$ and $P(c+2)$ carries no other vertex P_j ($j = 1, 2, \dots, n$, and $j \neq b$, $j \neq c$, $j \neq c+1$, $j \neq c+2$) which belongs to the polygon and not yet selected, and an angle $\angle P_b P(c+1) P(c+2)$ formed by the reference vertex P_b , and the vertexes $P(c+1)$ and $P(c+2)$ is smaller than 180 degrees, and

said polygon division operation generates the partial polygon data specifying at least the partial polygon formed by the reference vertex P_b , and the vertexes P_c , and $P(c+1)$ selected in said first selection operation, and the vertex $P(c+2)$ selected in said second selection operation.

Claim 12 (Previously Presented) The polygon rendering program according to claim 11, wherein

said polygon division operation further includes a setting operation of setting the vertex $P(c+2)$ to the vertex $P(c+1)$ when the vertex $P(c+2)$ selected in said second selection operation satisfies a condition that the triangle $\triangle P_b P(c+1) P(c+2)$ carries, in and on, no other vertex P_j , and the angle $\angle P_b P(c+1) P(c+2)$ is smaller than 180 degrees,

said second selection operation keeps selecting, until the condition is no longer satisfied, together with the reference vertex P_b selected in said first selection operation, and the vertex $P(c+1)$ newly set in said second selection operation, a new vertex $P(c+2)$ which is positioned adjacent to the newly set vertex $P(c+1)$, and

said polygon division operation generates the partial polygon data which specifies the partial polygon formed by the reference vertex P_b , and the vertexes P_c and $P(c+1)$ selected in said first selection operation, and the vertex $P(c+2)$ selected in said second selection operation.

Claim 13 (Currently Amended) The polygon rendering program according to claim 11-10, wherein the polygon rendering program is recorded on a recording medium.